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Advantages and Disadvantages of E-learning in Nursing Teaching

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ABSTRACT

The current education trend in the world confirms the meaningfulness and relevance of e-learning integration into the academic and professional environment. Studies focusing on this form of education point to many benefits in nursing training for the profession. The main objective of this survey is to highlight the advantages and disadvantages of e-learning education in the healthcare teaching process. The survey has a character of overview investigation. The source of gathered information were citations of database PubMed, Medline and BMS, whose investigation ran from November 2017 to January 2018. Total 32 scientific and professional articles were used in the survey from the period 2002-2017. The studied group were students and teachers involved in the learning process through e-learning. E-learning education allows students to be independent and flexible in studying, to develop technical skills, critical thinking and cognitive skills. It empowers teachers to personal and professional growth, development of technical skills. However, e-learning is more effective when it is combined with direct contact of student and teacher/tutor. E-learning is a suitable complementary method of traditional education that current pedagogical practice requires.

Keywords: Nursing, E-learning, Education, Advantages, Disadvantages.

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INTRODUCTION

Today's modern society has seen a significant progress in the use of multimedia technologies in lifelong learning (Kozík, 2006). E-learning education is an education through information multimedia technology, which utilizes technical and socio-psychological way of conducting the teaching process in teacher/tutor and student relationship (Čepelová et al., 2011). According to some authors, such education helps students with independence, responsibility, flexibility, self-control, efficiency of education and with increasing informative literacy. It allows students to learn anywhere and any time (Pišútová et al., 2009; Kanuka, 2008; Meyer, 2014; Song, 2014).

The current education trend in the world confirms the meaningfulness and relevance of e-learning integration into the academic and professional environment. E-instrumentation as one of the means of e-learning is an exciting way of developing the broad-spectrum competencies of students and educators who have the ambition to continuously improve their work and make it more efficient (Kanuka, 2008).

METHODOLOGY

The main aim of the study is to highlight advatages and disadvantages of e-learning in healthcare teaching process.

The survey has a character of overview investigation containing results of specialized articles and scientific studies focusing on nursing e-learning. The main source of gathered information were citations of database PubMed, Medline and BMS. The investigation ran from November 2017 to January 2018. The total 124 scientific and professional articles and studies were found.

Total 32 articles for the period 2002-2017 were suited for this survey. Attention was focused on the impact of e-learning education on students' knowledge and abilities, on the effectiveness and quality of the learning process that bring benefits to this education. The results were transferred into a table form.

RESULTS

E-learning is an implementation of information technologies in the development, distribution and management for education or teaching. It represents modern educational technologies when transfer of information is

realized through on-line distance courses. Distance learning nowadays uses the Internet and high-tech equipment for classrooms and workplace, allowing flexible, independent and effective learning (Nemcová et al., 2010).

For students, e-learning is a practical and convenient form of information acquisition and an effective learning management and quality management tool. Such learning enables students to have a better understanding of interpretive texts, to consolidate knowledge and to link them to practice (Meyer, 2014).

From the economic point of view, it saves time and finances (Černák, Mašek, 2007). Electronic education is directly proportional to the interconnection of pedagogical, psychological and technical legislations. Without the acceptance of distance learning rules, it is difficult to succeed. The content of learning in the learning process generally consists of a great extent of knowledge and skills that a student should acquire. It is determined by a number of factors such as a type and focus of the education, learning subjects and so on (Závodná, 2002). The content is specified in the curriculum, education program and specialized standards (Turek, 2010; Petlák, 2016). The advantage of e-learning compared to traditional methods is also the ability to continuously complete and improve textbooks. E-learning education can take place in two lines, ie: off-line study (learning resources are located on data carriers – CDs, DVDs, USB keys, etc.) and on-line learning (learning materials, special electronic textbooks can be obtained through network communication resources – internet, intranet, websites, etc.) (Kalaš et al., 2010; Bednářiková, 2010). This online form of education allows discussion forums, real-time interviews, faster interaction and feedback (Zlámalová, 2008). However, study requires connection to network administrators' using mobile computers or mobile phones. E-learning education can be used as an additional learning support (Blended Learning) or as a separate distance learning using LMS (Learning Management System) software. Blended Learning is a combination of traditional teacher-led or tutoring, online teaching and structured work-based training run by qualified staff (Bednářiková, 2010). The success of online learning depends on the possibility of stimulating the dynamics of the virtual class (Jusczyk, Spyrka, 2003). Other benefits of e-learning are a quick and overview of planned topics and learning activities, more space for self-study, national and

international exchange of teacher's experience. Assessing is fast, automatic and does not depend on the location and time of assessment. The advantage is the ability to quickly and easily translate into educational content, adding content and feedback to related subjects (Bednářiková, 2010). By combining various means, videos, computer simulations, multimedia textbooks, group discussions over the Internet and other learning methods that make the process attractive, physically disabled students have the opportunity to learn, develop their imagination, creativity, critical and logical thinking (Nemcová et al., 2010; Jusczyk, Spyrka, 2003; Kvizda, 2004; Liba, 2016). Within the quality of education, it is appropriate to combine this learning technology with the direct contact of participants in the learning process (Černák, Mašek 2007; Zahra et al., 2016). Teachers need to be professionally and technically trained for on-line education. There are not always sufficient supportive technical and organizational structures for the given course (Bednářiková, 2010). The course program can often be created based on author's point of view, rather than the learners', which may appear to be a disadvantage of such learning (Bednářiková, 2010). The advantages and disadvantages of e-learning education are shown in Tables 1-2.

Table 1: Overview of studies focusing on advantages of e-learning education in nursing

Study	Aim of study	Description	Results
Green JK, Huntington AD, 2017	Expectations from E-learning education in clinical conditions.	6 target groups monitored for 16 months.	It improves student's knowledge and skills through different courses. Student contacting with a virtual patient will teach them to handle unexpected situations. An effective way to educate a student (beginner) in clinical conditions. Auxiliary supplement to the traditional education.
Jarošová, D, 2002	Impact of e-learning education on level of students' knowledge.	Nursing students.	Effective self-study using high-quality multimedia materials. Study of a large number of people at once. Evaluating a level of student's knowledge during the learning process.

Hajžmanová, L, 2016	The impact of e-learning on students' abilities.	Nursing students	Active access to information for students. Developing students' cognitive abilities (better memorizing and learning of theory). Better teamwork and effective communication between student-teacher in nursing.
Härkänen M, Voutilainen A, Turunen E, Vehviläinen-Julkunen K, 2016	Quality and effectiveness of educational methods (simulations, presentations, posters, pamphlets)	755 students tested in 14 simulation programs	Positive impact of all educational methods on developing students' abilities and skills. Blended Learning and Power Point presentation were the most effective.
Melba Sheila D´Souza, Subrahmanya Nairy Karkada, Ramir Castro, 2014	Effectiveness of e-learning education in nursing	50 teachers of year 1 at nursing university	Professional and personal development of a teacher. Developing technical skills and effeciently implemented teaching in nursing. Less time for a teacher to prepare for continuing education.

Source: *authors*

Table 2: Overview of studies focusing on disadvantages of e-learning education in nursing

Study	**Aim of study**	**Description**	**Results**
Jarošová, D, 2002	The impact of e-learning education on level of student's knowledge	Nursing students	High financial costs at early stages of creating a course in nursing.
Ahmed, H. M. S., 2010	Satisfaction of university students with online education.	538 university students	Insufficient instructional characteristics. Required relevant selection of appropriate pedagogues for teaching.
Parker S, Mayner L, Michael Gillham D, 2015	Impact of e-learning education on students' critical thinking.	Nursing students	Necessary consistent and structured leadership of students to critical thinking in regards to teachers in nursing.

Hajžmanová, L, 2016	The impact of e-learning education on students' abilities.	Nursing students	The need to control technology and know how to use it effectively.
Melba Sheila D´Souza, Subrahmanya Nairy Karkada, Ramir Castro, 2014	Impact of e-learning education in nursing	50 teachers of year 1 at nursing university	Working overtime in the initial phase of creating an electronic course. The required technical skills of the teacher in the initial phase of the course

Universities Using E-learning Nursing Education

Nowadays, e-learning education is becoming more and more popular in Slovakia and abroad. Studies focusing on this form of education point to many benefits, for example in the nursing training (Table 1). E-learning enables students to gain more formations and more insight into the issue through innovative methods of this learning process. Professional experience such as how to provide first aid for patients having myocardial attack or epileptic seizure, knowing how to respond appropriately in such situation help students gain that knowledge later during the practice. On-line discussions, blogs, wikis allow students to integrate into so called online community (Geraldine Macdonald, 2002). This type of education is commonly used abroad at University of Birmingham, aimed at educating future nurses. Simulation programs used for virtual student education at this university make a significant contribution towards expanding knowledge and manual skills of nursing students. The programs used are Virtual Case Creator, Virtuar and ComsLive. These programs include about 30 different interactive online simulations aimed at health of children, adults and seniors, prevention of chronic illness complications or falls of disabled patients, seniors and so on. Other world health universities using e-learning are located in Washington, Pittsburgh, Sydney etc. In Czech Republic it is the Silesian University of Opava and Ostrava University in Ostrava. In Slovakia there is Jessenius Medical Faculty in Martin, University of philosoph Constantine in Nitra, University of Joseph Safarik in Kosice and University of Presov. Distance study texts, ie. E-books, audiobooks, video recordings, online courses, videoconferencing, auto-corrective tests,

electronic link, virtual multimedia visualization and the like, increase student's work activity, autonomy, imagination and overall effectiveness of education (Bajtoš, 2013). E-learning courses are created by a group of programmers, graphic designers, pedagogues and other professionals that require students to have technical skills.

DISCUSSIONS AND CONCLUSION

E-learning education provides students with an option of an individual pace of study, a space for exercise and feedback. It has a positive impact on the development of cognitive skills and the student's level of knowledge. E-learning provides students with an active approach to obtaining information and greater autonomy in a study that currently requires teaching practice. Nowadays, e-learning helps students to self-reflect, to be independent and allows them to be flexible in learning, learn anywhere and anytime (Kim et al., 2014). Using e-learning promotes student activity, creativity and autonomy (Beisetzer, 2006).

E-learning develops the broad-spectrum competence of students and educators who have the ambition to not only simplify their work, but also to improve it continuously. E-learning enhances information literacy and improves communication among participants, helping to move information faster (Lancková et al., 2011).

The effectiveness of e-learning is also clarified by Liba (2016), who states that the form of such learning stimulates cognitive and affective learning. This kind of education influences the internal motivation of students and teachers, the occurrence of creative impulses, such as collaboration with a teacher, where the teacher is understood as an advisor. Self-sufficiency and a peaceful learning environment support students' efforts to learn. As an advantage, Jusczyk, Spyrka (2003) presents the flexibility and convenience, the disadvantage of lack of direct interactions and the technical shortcomings of this training.

Creating e-learning courses in vocational nursing training creates conditions for building national, respectively transnational cooperation with educational institutions.

Recommendations for Teaching Practice and Education

E-learning recommendations should focus on making this type of modern education more effective. Although the initial financial and time costs for creating a learning module are higher, educational institutions should prefer this learning.

The savings in administration and production of learning module content in e-learning, savings on travel costs for students, production of printed material and textbooks, on teachers and other of them are greater than in traditional education.

In the e-learning educational process, feedback from students is very important (Mosharraf, Taghiyareh, 2012). If an educational institution is to carry out effective education, students need more detailed feedback (Straková, 2015).

It is necessary also to approach students individually as there are great differences in the pace of learning and in the logical thinking of students. Teachers should rationally consider the pace of work of students. It is advisable for the more skilled students to add the work in such a way that they do not get too heavy or discouraged from studying (Pasternáková, 2011). Information that is communicated to students needs to be structured to be effective. When creating e-learning materials, knowledge should be categorized and analyzed in order to make learning easier for the student. Undergraduate preparation of future teachers requires increased attention to the development of socio-psychological skills of teachers (Čepelová et al., 2011).

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To facilitate the publication process, please submit manuscript graphics using the following guidelines:

1. The preferred submission procedure is to embed graphic files in a Word document. It may help to print the manuscript on a laser printer to ensure all artwork is clear and legible.

2. Additional acceptable file formats are: TIFF, PDF, EPS (vector artwork) or CDX (ChemDraw file). If submitting individual graphic files in addition to them being embedded in a Word document, ensure the files are named based on graphic function (i.e. Scheme 1, Figure 2, Chart 3), not the scientific name. Labeling of all figure parts should be present and the parts should be assembled into a single graphic.

EPS files: Ensure that all fonts are converted to outlines or embedded in the graphic file. The document settings should be in RGB mode. **NOTE:** While EPS files are accepted, the vector-based graphics will be rasterized for production. Please see below for TIFF file production resolutions.

3. TIFF files (either embedded in a Word doc or submitted as individual files) should have the following resolution requirements:

- Black & White line art: 1200 dpi

- Grayscale art (a monochromatic image containing shades of gray): 600 dpi

- Color art (RGB color mode): 300 dpi

- The RGB and resolution requirements are essential for producing high-quality graphics within the published manuscript.

- Most graphic programs provide an option for changing the resolution when you are saving the image. Best practice is to save the graphic file at the final resolution and size using the program used to create the graphic.

4. Graphics should be sized at the final production size when possible. Single column graphics are preferred and can be sized up to 240 points wide (8.38 cm.). Double column graphics must be sized between 300 and 504 points (10.584 and 17.78 cm's). All graphics have a maximum depth of 660 points (23.28 cm.) including the caption (please allow 12 points for each line of caption text).

Consistently sizing letters and labels in graphics throughout your manuscript will help ensure consistent graphic presentation for publication.

Image Manipulation. Images should be free from misleading manipulation. Images included in an account of research performed or in the data collection as part of the research require an accurate description of how the images were generated and produced. Apply digital processing uniformly to images, with both samples and controls. Cropping must be reported in the figure legend. For gels and blots, use of positive and negative controls is highly recommended. Avoid high contrast settings to avoid overexposure of gels and blots. For microscopy, apply color adjustment to the entire image and note in the legend. When necessary, authors should include a section on equipment and settings to describe all image acquisition tools, techniques, and settings, and software used. All final images must have resolutions of 300 dpi or higher. Authors should retain unprocessed data in the event that the Editors request them.

Specialized Data

Biological Data. Quantitative biological data are required for all tested compounds. Biological test methods must be referenced or described in sufficient detail to permit the experiments to be repeated by others. Detailed descriptions of biological methods should be placed in the experimental section. Standard compounds or established drugs should be tested in the same system for comparison. Data may be presented as numerical expressions or in graphical form; biological data for extensive series of compounds should be presented in tabular form.

Active compounds obtained from combinatorial syntheses should be resynthesized and retested to verify that the biology conforms to the initial observation. Statistical limits (statistical significance) for the biological data are usually required. If statistical limits cannot be provided, the number of determinations and some indication of the variability and reliability of the results should be given. References to statistical methods of calculation should be included.

Doses and concentrations should be expressed as molar quantities (e.g., mol/kg, μmol/kg, M, mM). The routes of administration of test compounds and vehicles used should be indicated, and any salt forms used (hydrochlorides, sulfates, etc.) should be noted. The physical state of the compound dosed (crystalline, amorphous; solution, suspension) and the formulation for dosing (micronized, jet-milled, nanoparticles) should be indicated. For those compounds found to be inactive, the highest concentration (in vitro) or dose level (in vivo) tested should be indicated.

If human cell lines are used, authors are strongly encouraged to include the following information in their manuscript:

- the cell line source, including when and from where it was obtained;

- whether the cell line has recently been authenticated and by what method;

- whether the cell line has recently been tested for mycoplasma contamination.

Confirmation of Structure. Adequate evidence to establish structural identity must accompany all new compounds that appear in the experimental section. Sufficient spectral data should be presented in the experimental section to allow for the identification of the same compound by comparison.

List only infrared absorptions that are diagnostic for key functional groups. If a series contains very closely related compounds, it may be appropriate merely to list the spectral data for a single representative member when they share a common major structural component that has identical or very similar spectral features.

Submitting the Manuscript

Communication and log in to Author's Module All submissions to JHESP should be made by using Online Article Acceptance and Evaluation system on the journal web page.

Registration to System It is required to register into the Online Article Acceptance and Evaluation system (Journal Park) for the first time while entering by clicking "Create Account" button on the registration screen and the fill the opening form with real information. Some of the information required in form is absolutely necessary and the registration will not work if these fields are not completely filled.

Authors are expected to return to the entry screen and log on with their username and password for the submission. Please use only English characters while determining your username and password.

If you already registered into the journal park system and forget your password, you should click on "Forgot My Password" button and your username and password will be mailed to your e-mail in a short while.

Adding Article This process consists of several different steps beginning with the loading of the article into the system. **Browse** button is used to reach the article file, under the **Upload** tab. After finding the article you may click to **Choose File** and file will be attached.